

## **DEPARTMENT OF TRANSPORTATION**

### **Federal Aviation Administration**

#### **14 CFR Part 39**

**[Docket No. 2004-NE-10-AD; Amendment 39-13885; AD 2004-24-09]**

**RIN 2120-AA64**

#### **Airworthiness Directives; Rolls-Royce Corporation (Formerly Allison Engine Company, Allison Gas Turbine Division, and Detroit Diesel Allison) (RRC) 250-B and 250-C Series Turboshift and Turboprop Engines**

**AGENCY:** Federal Aviation Administration (FAA), DOT.

**ACTION:** Final rule.

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**SUMMARY:** The FAA is adopting a new airworthiness directive (AD) for certain RRC 250-B and 250-C series turboshift and turboprop engines. This AD requires a onetime inspection of the fuel nozzle screen for contamination, and if contamination is found, inspection and cleaning of the entire aircraft fuel system before further flight. This AD also requires replacing the fuel nozzle with a new design fuel nozzle, at the next fuel nozzle overhaul or by June 30, 2006, whichever occurs first. This AD results from 10 reports of engine power loss with accompanying collapse of the fuel nozzle screen, due to fuel contamination. We are issuing this AD to minimize the risk of sudden loss of engine power and uncommanded shutdown of the engine due to fuel contamination and collapse of the screen in the fuel nozzle.

**DATES:** This AD becomes effective January 5, 2005.

**ADDRESSES:** You can get the service information identified in this proposed AD from Rolls-Royce Corporation, P.O. Box 420, Indianapolis, IN 46206-0420; telephone (317) 230-6400; fax (317) 230-4243.

You may examine the AD docket, by appointment, at the FAA, New England Region, Office of the Regional Counsel, 12 New England Executive Park, Burlington, MA.

**FOR FURTHER INFORMATION CONTACT:** John Tallarovic, Aerospace Engineer, Chicago Aircraft Certification Office, FAA, 2300 East Devon Avenue, Des Plaines, IL 60018-4696; telephone (847) 294-8180; fax (847) 294-7834.

**SUPPLEMENTARY INFORMATION:** The FAA proposed to amend 14 CFR part 39 with a proposed airworthiness directive (AD). The proposed AD applies to certain RRC 250-B and 250-C series turboshaft and turboprop engines. We published the proposed AD in the Federal Register on May 7, 2004 (69 FR 25501). That action proposed to require:

- A onetime inspection of the fuel nozzle screen for contamination, within 150 operating hours after the effective date of the proposed AD; and
- Inspection and cleaning of the entire aircraft fuel system before further flight, if contamination is found; and
- Replacement of the fuel nozzle with a serviceable (new design) fuel nozzle, at the next fuel nozzle overhaul or by June 30, 2006, whichever occurs first.

### **Examining the AD Docket**

You may examine the AD Docket (including any comments and service information), by appointment, between 8 a.m. and 4:30 p.m., Monday through Friday, except Federal holidays. See ADDRESSES for the location.

### **Comments**

We provided the public the opportunity to participate in the development of this AD. We have considered the comments received.

### **Request To Add Sikorsky Model S-76A Helicopter to the Applicability**

One commenter asks us to add the Sikorsky Model S-76A helicopter to the Applicability. The commenter states that the S-76A helicopter uses RRC model 250-C30 and 250-C30S engines. We agree. Although this AD is applicable to the RRC model 250-C30 and 250-C30S engines, we list airframes that might use the engines as an aid to the operators. We added the Sikorsky model S-76A helicopters to the "used on but not limited to" sentence in paragraph (c) of the final rule.

### **Request To Expand the Discussion Section of the Preamble**

One commenter asks us to expand the background information in the Discussion section regarding the recent history of fuel nozzle contamination on the RCC Model 250 engines. The commenter feels the change will include more details to the public regarding the actual issues leading to the collapsed screen events and the potential risk to their specific operations. While we agree more details in the notice of proposed rulemaking (NPRM) could have been helpful to the public, that section is not included in a final rule. We did not change the final rule to add more details about the events.

### **Request To Change the Unsafe Condition Statement**

The same commenter asks us to change the unsafe condition statement in the Summary section of the preamble and in paragraph (d) of the regulatory text from "to prevent \* \* \* engine" to "to minimize the risk of \* \* \* engine." The commenter wants to clarify that installing this new fuel nozzle with the modified screen will provide additional resistance to collapse of the screen when the screen is subjected to contaminated conditions. However, the modification cannot prevent or eliminate the risk of power loss when operating on aircraft with contaminated fuel. We agree. We changed the last sentence in the Summary section of the preamble and the last sentence in paragraph (d) of the regulatory text in the final rule to "to minimize the risk of \* \* \* engine."

## **Suggestions That the AD Is Not Needed**

Two commenters feel that we do not need to issue an AD to address the unsafe condition. One commenter suggests that RRC revise the applicable maintenance manuals to reduce the inspection interval for the fuel nozzle screens from the current 1,500 hour interval to a 500 hour interval. The commenter feels that the aircraft involved in the incidents might not have had maintenance performed using the appropriate maintenance publication, were not fueled from a known good source, or did not maintain their fuel system filters that are upstream of the fuel nozzle. We do not agree. As we stated in the NPRM, there are 10 instances where the affected engines experienced a power loss from contaminated fuel and collapse of the fuel nozzle screen. We feel that the onetime inspection is necessary to find any engines in service that have a contaminated fuel nozzle screen and impending collapse. The RRC Operation and Maintenance manual requires scheduled inspections at 300-hour intervals when the fuel system does not have an aircraft fuel filter. The manual requires scheduled inspections at 1,500-hour intervals when the fuel system has an aircraft fuel filter. If we find the inspection intervals in the RRC manual are too long, we might propose changing those intervals in the future. We did not change the final rule.

Another commenter feels that we don't need to issue an AD if operators maintain a clean fuel system, have a clean fuel supply system, and have methods in place to make sure they only use clean fuel. We do not agree. If there were always a clean supply of fuel, filters, screens, and nozzles, contaminants would never block them. Unfortunately, even with long-standing warnings by engine manufacturers about using contaminated fuel, our recent Special Airworthiness Information Bulletin on the matter, and all of the effort that goes into ensuring a clean fuel supply, it is not possible to prevent contamination entirely. Tests show the new design fuel nozzle screens are more resistant to sudden collapse when contaminated. Fuel flow through the new fuel nozzle screen will decrease gradually as the screen becomes contaminated. The decreased fuel flow will give the pilot more time to notice the problem and take action. When contaminated, the old design of fuel nozzle screen could collapse without warning and cause an abrupt reduction in fuel flow. We did not change the final rule.

## **Request To Require Changing the Rotorcraft Flight Manuals**

One commenter asks us to require changing the flight manuals, for the rotorcraft that use the affected engines, to direct the pilot to land the rotorcraft immediately when the fuel system goes into bypass mode. The commenter states the flight manuals for some rotorcraft direct operators to land immediately after entering bypass mode. Other flight manuals allow continued flight and only require addressing the issue before the next flight. We do not agree. This AD only addresses engine design issues. This is not the appropriate vehicle to change the rotorcraft flight manuals. We forwarded the suggested changes to the responsible FAA rotorcraft certification offices.

## **Request To Lower the Total Costs of Compliance**

One commenter asks us to lower the total Cost of Compliance from about \$12,650,000 to about \$2,760,000. The commenter states that an operator can buy the new fuel nozzle screens for about \$81 each, and install them for about an additional \$276 each. We do not agree. The new fuel nozzle screen has additional mesh material to make it more resistant to collapse than the original screen. This design difference may cause a difference in how fuel flows through the screen and nozzle spray tip. The OEM has developed and uses a procedure to check the fuel nozzle for proper operation after installing, which is why the AD is structured as it is. At this time, the only approved method to comply with the AD is to replace the existing nozzle assembly with an assembly that does not have a part number listed in the AD. We based the costs we used in our analysis on the cost of a new fuel nozzle assembly and the cost of a fuel nozzle assembly reworked to the new configuration during

overhaul of the nozzle assembly. If an operator develops a method of complying with the AD that is less expensive and maintains an equivalent level of safety using FAA-approved screens, the operator may send that method to us as a request for an alternative method of compliance under the procedures found in 14 CFR 39.19. We did not change the final rule.

## **Conclusion**

We have carefully reviewed the available data, including the comments received, and determined that air safety and the public interest require adopting the AD with the changes described previously. We have determined that these changes will neither increase the economic burden on any operator nor increase the scope of the AD.

## **Costs of Compliance**

There are about 15,000 RRC 250-B and 250-C series turboshaft and turboprop engines of the affected design in the worldwide fleet. We estimate that 10,000 engines installed on aircraft of U.S. registry will be affected by this AD. We also estimate that it will take about 1 work hour per engine to perform the actions, and that the average labor rate is \$65 per work hour. In addition, operators can either replace the fuel nozzle with a new one at a cost of about \$2,595 or have the existing nozzle overhauled at a cost of about \$850. We estimate that about 80% of the fuel nozzles will be overhauled and 20% will be replaced with a new nozzle. Therefore, we estimate that the required parts would cost, on average, about \$1,200 per engine. Based on these figures, we estimate the total cost of the AD to U.S. operators to be \$12,650,000.

## **Authority for This Rulemaking**

Title 49 of the United States Code specifies the FAA's authority to issue rules on aviation safety. Subtitle I, section 106, describes the authority of the FAA Administrator. Subtitle VII, Aviation Programs, describes in more detail the scope of the Agency's authority.

We are issuing this rulemaking under the authority described in Subtitle VII, part A, subpart III, section 44701, "General requirements." Under that section, Congress charges the FAA with promoting safe flight of civil aircraft in air commerce by prescribing regulations for practices, methods, and procedures the Administrator finds necessary for safety in air commerce. This regulation is within the scope of that authority because it addresses an unsafe condition that is likely to exist or develop on products identified in this rulemaking action.

## **Regulatory Findings**

We have determined that this AD will not have federalism implications under Executive Order 13132. This AD will not have a substantial direct effect on the States, on the relationship between the National Government and the States, or on the distribution of power and responsibilities among the various levels of government.

For the reasons discussed above, I certify that this AD:

- (1) Is not a "significant regulatory action" under Executive Order 12866;
- (2) Is not a "significant rule" under DOT Regulatory Policies and Procedures (44 FR 11034, February 26, 1979); and
- (3) Will not have a significant economic impact, positive or negative, on a substantial number of small entities under the criteria of the Regulatory Flexibility Act.

We prepared a summary of the costs to comply with this AD and placed it in the AD Docket. You may get a copy of this summary by sending a request to us at the address listed under ADDRESSES. Include "AD Docket No. 2004-NE-10-AD" in your request.

## **List of Subjects in 14 CFR Part 39**

Air transportation, Aircraft, Aviation safety, Safety.

### **Adoption of the Amendment**

Accordingly, under the authority delegated to me by the Administrator, the Federal Aviation Administration amends 14 CFR part 39 as follows:

### **PART 39—AIRWORTHINESS DIRECTIVES**

1. The authority citation for part 39 continues to read as follows:

Authority: 49 U.S.C. 106(g), 40113, 44701.

#### **§ 39.13 [Amended]**

2. The FAA amends § 39.13 by adding the following new airworthiness directive (AD):

# AIRWORTHINESS DIRECTIVE



Aircraft Certification Service  
Washington, DC

U.S. Department  
of Transportation  
**Federal Aviation  
Administration**

*We post ADs on the internet at "www.faa.gov"*

The following Airworthiness Directive issued by the Federal Aviation Administration in accordance with the provisions of Title 14 of the Code of Federal Regulations (14 CFR) part 39, applies to an aircraft model of which our records indicate you may be the registered owner. Airworthiness Directives affect aviation safety and are regulations which require immediate attention. You are cautioned that no person may operate an aircraft to which an Airworthiness Directive applies, except in accordance with the requirements of the Airworthiness Directive (reference 14 CFR part 39, subpart 39.3).

**2004-24-09 Rolls-Royce Corporation:** Amendment 39-13885. Docket No. 2004-NE-10-AD.

## Effective Date

- (a) This airworthiness directive (AD) becomes effective January 5, 2005.

## Affected ADs

- (b) None.

## Applicability

(c) This AD applies to Rolls-Royce Corporation (formerly Allison Engine Company, Allison Gas Turbine Division, and Detroit Diesel Allison) (RRC) 250-B and 250-C series turboshaft and turboprop engines in the following Table 1:

**TABLE 1.—250-B AND 250-C SERIES TURBOSHAFT AND  
TURBOPROP ENGINES AFFECTED**

–B15A	–B15E	–B15G	–B17	–B17B	–B17C
–B17D	–B17E	–B17F	–B17F/1	–B17F/2	–C18
–C18A	–C18B	–C18C	–C20	–C20B	–C20C
–C20F	–C20J	–C20R	–C20R/1	–C20R/2	–C20R/4
–C20S	–C20W	–C28	–C28B	–C28C	–C30
–C30G	–C30G/2	–C30M	–C30P	–C30R	–C30R/1
–C30R/3	–C30R/3M	–C30S	–C30U	–C40B	–C47B
–C47M					

These engines are installed on, but not limited to, Agusta Models A109, A109A, A109AII, and A109C; Bell Helicopter Textron Models 47, 206A, 206B, 206L, 206L-1, 206L-3, 206L-4, 407, and 430; B-N Group Models BN-2T and BN-2T-4R; Enstrom Models TH28, 480; and 480B; Eurocopter Canada Limited Model BO 105 LS A-3; Eurocopter France Models AS355E, AS355F, AS355I, and AS355F2; Eurocopter Deutschland Models BO-105A, BO-105C, BO-105S, and BO-105LS A-1; Hiller Aviation Model FH-1100; McDonnell Douglas 369D, 369E, 369F, 369H, 369HE, 369HM, 369HS, 369FF, and 500N; Schweizer TH269D; SIAI Marchetti s.r.l. Models SF600 and SF600A; and Sikorsky S-76A helicopters and airplanes.

## **Unsafe Condition**

(d) This AD results from 10 reports of engine power loss with accompanying collapse of the screen in the fuel nozzle, due to fuel contamination. We are issuing this AD to minimize the risk of sudden loss of engine power and uncommanded shutdown of the engine due to fuel contamination and collapse of the screen in the fuel nozzle.

## **Compliance**

(e) You are responsible for having the actions required by this AD performed within the compliance times specified unless the actions have already been done.

(f) Perform a onetime inspection of the fuel nozzle screen for contamination, within 150 operating hours after the effective date of this AD.

(g) Inspect and clean the entire aircraft fuel system before further flight if there is any contamination on the screen.

(h) Remove from service fuel nozzles, part numbers (P/Ns) 6890917, 6899001, and 6852020, and replace with a serviceable fuel nozzle, at the next fuel nozzle overhaul after the effective date of this AD, or by June 30, 2006, whichever occurs first.

## **Definition**

(i) For the purposes of this AD, a serviceable fuel nozzle is defined as a nozzle that has a P/N not specified in, or addressed by, this AD.

## **Alternative Methods of Compliance**

(j) The Manager, Chicago Aircraft Certification Office, has the authority to approve alternative methods of compliance for this AD if requested using the procedures found in 14 CFR 39.19.

## **Related Information**

(k) Information related to the subject of this AD can be found in Rolls-Royce Corporation Alert Commercial Engine Bulletin, with the identification numbers of CEB-A-313, CEB-A-1394, CEB-A-73-2075, CEB-A-73-3118, CEB-A-73-4056, CEB-A-73-5029, CEB-A-73-6041, TP CEB-A-183, TP CEB-A-1336, and TP CEB-A-73-2032, dated September 4, 2003.

## **Material Incorporated by Reference**

(l) None.

Issued in Burlington, Massachusetts, on November 22, 2004.  
Francis A. Favara,  
Acting Manager, Engine and Propeller Directorate, Aircraft Certification Service.  
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